



# Indiana Crop & Weather Report

United States Dept of Agriculture

Indiana Agricultural  
Statistics Service

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## CROP REPORT FOR WEEK ENDING APRIL 11

### AGRICULTURAL SUMMARY

Soils became progressively drier during the week allowing many farmers to begin spring tillage and planting operations, according to the Indiana Agricultural Statistics Service. Scattered fields of corn were planted, but most farmers are still waiting for warmer soil conditions. The best progress for planting activities occurred in the southern region of the state, especially in the southwest. Precipitation was minimal in most areas of the state. Reporters indicate dry subsoil conditions in some areas for this time of the year. Warm sunny weather along with wind helped soils dry out during the week.

### FIELD CROPS REPORT

There were 5.5 **days suitable for fieldwork**. Three percent of the intended **corn** acreage is planted compared with 1 percent for both last year and the 5-year average. Seeding of oats was in full swing during the week. A few fields of **soybeans** have been planted. Spreading of fertilizer, applying anhydrous ammonia and spraying of chemicals took place on many fields. Final preparations of planting equipment continued. Growth and development of forage crops and pastures improved during the week.

Twenty-six percent of the **winter wheat** acreage is **jointed** compared with 20 percent last year and 25 percent for the 5-year average. Winter wheat **condition** is rated 83 percent good to excellent compared with 76 percent last year at this time. Wheat continues to look good, but thinner spots are becoming apparent in a few fields. Harmony was being sprayed on some wheat fields.

Major activities during the week were tillage of soils, moving grain to market, applying fertilizer and spreading lime, spraying chemicals, preparing equipment, ditch and fence row cleaning, seeding legumes, hauling manure and taking care of livestock.

### LIVESTOCK, PASTURE AND RANGE REPORT

Pasture condition is rated 8 percent excellent, 58 percent good, 29 percent fair, 4 percent poor and 1 percent very poor. Livestock are in mostly good condition. **Hay** supplies are rated 2 percent very short, 10 percent short, 80 percent adequate and 8 percent surplus. Lambing and spring calving continued with most reporting very little difficulty.

### CROP PROGRESS TABLE

Crop	This Week	Last Week	Last Year	5-Year Avg
Percent				
Corn Planted	3	NA	1	1
Winter Wheat Jointed	26	12	20	25

### CROP CONDITION TABLE

Crop	Very Poor	Poor	Fair	Good	Excellent
Percent					
Pasture	1	4	29	58	8
Winter Wheat 2004	0	2	15	63	20
Winter Wheat 2003	0	3	21	60	16

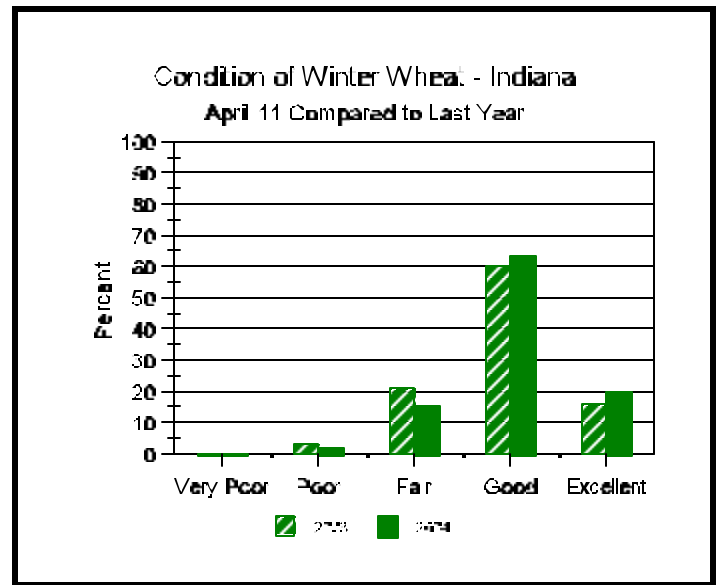
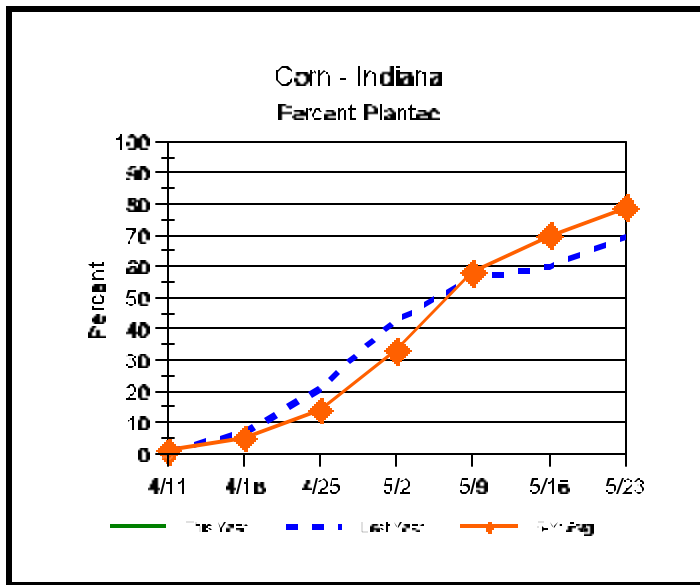
### SOIL MOISTURE & DAYS SUITABLE FOR FIELDWORK TABLE

	This Week	Last Week	Last Year
Percent			
<b>Topsoil</b>			
Very Short	1	0	2
Short	8	1	6
Adequate	77	54	73
Surplus	14	45	19
<b>Subsoil</b>			
Very Short	2	2	7
Short	7	3	17
Adequate	77	68	66
Surplus	14	27	10
<b>Days Suitable</b>	5.5	1.5	2.9

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# Crop Progress



## Other Agricultural Comments And News

### Puzzle of Corn's Origins Coming Together

- Understanding the genetic origins of corn -- now the world's single largest food crop-- is important both for production of new varieties and for preserving corn's genetic heritage, says Mary Eubanks.

Friday, April 2, 2004 | MONTREAL -- The scientific puzzle pieces are fitting together to form a definitive picture of the origin of corn, says a Duke University plant geneticist who has proposed that the world's most important food crop originated in an ancient cross between two grasses.

Mary Eubanks described the latest evidence that corn, or maize, originated as a cross between teosinte and gamagrass, or *Tripsacum*, in a talk Friday, April 2, 2004, at a symposium on maize held at the annual meeting of the Society for American Archaeology ([www.saa.org](http://www.saa.org)) in Montreal. Her research is supported by the National Science Foundation and the North Carolina Biotechnology Center.

Eubanks, an adjunct professor of biology, has developed evidence that modern corn, scientific name *Zea mays*, did not evolve solely from a Central American grass known as teosinte -- traditionally the most widely held theory. Rather, her experiments clearly demonstrate that corn arose from a serendipitously viable cross between teosinte and gamagrass.

Eubanks emphasized in an interview that her research has confirmed that teosinte was indeed one of corn's ancestors, and that gamagrass was a critical genetic contributor. She contrasts her evidence with the former, highly controversial theory of the late biologist Paul Mangelsdorf, who espoused

that teosinte was an offshoot of a cross between corn and *Tripsacum* rather than an ancestor of corn.

"My hypothesis confirms that teosinte is an ancestor of maize, and that key genes were also contributed by gamagrass," she said. In her talk, Eubanks displayed examples of her crosses between species of teosinte and gamagrass that exhibit the evolution from the tiny spikes of teosinte seeds to the early versions of corn ears.

New evidence from other researchers that maize evolved very rapidly, perhaps over only a century, supports such a theory, said Eubanks. Rather than the long, slow progressive evolution from teosinte into maize, a fertile cross between teosinte and gamagrass could have relatively quickly yielded early versions of maize. In her talk, Eubanks displayed archaeological specimens of corn alongside matching segregates from experimental crosses between teosinte and gamagrass.

Eubanks also discussed her comparative DNA fingerprinting studies of teosinte and *Tripsacum* taxa, along with primitive popcorns from Mexico and South America. Those analyses of over a hundred genes in the taxa revealed that some 20 percent of the versions, called alleles, of specific genes found in maize are found only in *Tripsacum*. And, about 36 percent of the alleles in maize were shared uniquely with teosinte.

"These findings are by no means conclusive," said Eubanks. "We need to do a lot more sampling of the genetic diversity in different teosinte and *Tripsacum* species to further test this finding. But certainly, the preliminary evidence from this

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# Weather Information Table

Week ending Sunday April 11, 2004

Station	Past Week Weather Summary Data							Accumulation				
	Air				Precip.		Avg	April 1, 2004 thru				
	Temperature				Total		4 in	April 11, 2004				
	Hi	Lo	Avg	DFN	Total	Days	Soil Temp	Precipitation	DFN	Days	Total	DFN
<b>Northwest (1)</b>												
Chalmers_5W	70	26	47	-3	0.00	0	49	0.00	-1.27	0	8	-18
Valparaiso_AP_I	69	27	45	-3	0.00	0		0.00	-1.41	0	8	-7
Wanatah	70	23	44	-3	0.00	0	49	0.00	-1.37	0	7	-4
Wheatfield	70	23	45	-1	0.00	0		0.71	-0.66	2	9	-2
Winamac	68	23	45	-3	0.00	0		0.00	-1.31	0	8	-8
<b>North Central(2)</b>												
Plymouth	66	24	44	-5	0.05	1		0.05	-1.34	1	7	-11
South_Bend	67	22	43	-4	0.00	0		0.01	-1.42	1	7	-5
Young_America	67	26	47	-1	0.00	0		0.00	-1.21	0	9	-6
<b>Northeast (3)</b>												
Columbia_City	64	21	44	-2	0.00	0		0.01	-1.31	1	3	-7
Fort_Wayne	64	23	45	-2	0.00	0		0.01	-1.20	1	2	-11
<b>West Central (4)</b>												
Greencastle	75	23	46	-5	0.00	0		0.03	-1.29	1	9	-20
Perrysville	77	25	50	+1	0.00	0	52	0.00	-1.41	0	18	-5
Spencer_Ag	75	27	48	-2	0.27	1		0.44	-0.99	2	13	-12
Terre_Haute_AFB	71	24	47	-5	0.02	1		0.10	-1.26	2	13	-18
W_Lafayette_6NW	71	25	48	+1	0.00	0	54	0.00	-1.29	0	14	-2
<b>Central (5)</b>												
Eagle_Creek_AP	73	30	50	+0	0.02	1		0.11	-1.23	2	21	-6
Greenfield	73	28	49	+0	0.05	2		0.13	-1.30	4	14	-5
Indianapolis_AP	74	28	51	+1	0.10	1		0.20	-1.14	2	25	-2
Indianapolis_SE	73	26	49	-1	0.07	1		0.15	-1.17	2	16	-8
Tipton_Ag	71	27	47	-1	0.00	0		0.02	-1.39	1	7	-4
<b>East Central (6)</b>												
Farmland	69	25	47	+1	0.05	1		0.17	-1.13	3	7	-4
New_Castle	70	23	46	-2	0.03	1		0.07	-1.36	2	4	-7
<b>Southwest (7)</b>												
Evansville	76	31	54	-1	0.04	1		0.07	-1.40	2	39	-17
Freelandville	75	31	52	+0	0.06	2		0.14	-1.22	3	27	-10
Shoals	76	28	51	+0	0.03	1		0.18	-1.30	2	27	-9
Stendal	78	32	53	+1	0.05	1		0.18	-1.45	2	35	-10
Vincennes_5NE	78	31	52	+2	0.05	1	50	0.10	-1.26	2	29	-8
<b>South Central(8)</b>												
Leavenworth	78	30	52	+0	0.14	1		0.25	-1.47	2	28	-10
Oolitic	75	28	50	+0	0.12	2	51	0.34	-1.11	3	21	-8
Tell_City	77	36	55	+3	0.05	1		0.13	-1.63	2	48	-1
<b>Southeast (9)</b>												
Brookville	77	27	50	+2	0.09	1		0.28	-1.09	4	21	+2
Milan_5NE	73	27	49	+1	0.06	1		0.28	-1.09	4	17	-2
Scottsburg	75	25	50	-3	0.11	2		0.34	-1.20	3	23	-14

DFN = Departure From Normal (Using 1961-90 Normals Period).

GDD = Growing Degree Days.

Precipitation (Rainfall or melted snow/ice) in inches.

Precipitation Days = Days with precip of .01 inch or more.

Air Temperatures in Degrees Fahrenheit.

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## Puzzle of Corn's Origins Coming Together (Continued)

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study supports the hypothesis that *Tripsacum* introgression could have been the energizing factor for the mutations that humans then selected to derive domesticated maize."

In such selections, theorized Eubanks, early humans would have selected -- from the wide range of plants that would result from such crosses -- those that had the most numerous and accessible seeds. Eventually, such selection would have resulted in the cob-like structure of today's corn, she said.

Understanding the genetic origins of corn -- now the world's single largest food crop-- is important both for production of new varieties and for preserving corn's genetic heritage, said Eubanks.

"Because the crosses between teosinte and gamagrass bridge the sterility barrier between maize and *Tripsacum*, I'm now moving genes from gamagrass into corn," she said. "And we have developed drought-resistant and insect-resistant corn using conventional plant breeding methods."

For example, according to Eubanks, who is working with a commercial seed producer, test crops of some new hybrids have shown strong resistance to the billion-dollar bugs corn rootworm and European corn borer, along with corn earworm, another problematic corn pest.

"Understanding the genetic origins of corn and how people historically used corn could offer valuable insights for application to sustainable agriculture today," she said. "And finally, the gene pool underlying corn is part of our heritage that must be preserved if we are to retain the ability to solve agricultural problems such as new pests or the need for new farming methods."

Also, she noted, the scientific emphasis on corn is particularly timely because of recent findings that genetically altered corn is contaminating the native land races of maize and its wild relative teosinte currently in Mexico. This alteration of the natural gene pools of these genetic resources could have the effect of reducing the diversity of corn varieties, and compromise the ability to use those varieties as the basis for new crop strains.

According to Eubanks, the new drought and pest-resistant hybrids she and her colleagues have developed will undergo field tests this summer in the Midwest, followed by yield trials in winter nurseries, more field tests in the Midwest in 2005, and marketing seed in 2006.

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